

Abstract

The invention relates to a procedure for screening of neuroactive substance and the associated neural plasticity by treating the fruitfly *Drosophila melanogaster* adult males with fly medium containing either of the neuroactive compounds strychnine, pentylenetetrazol, pilocarpine hydrochloride, tetraethylammonium chloride, lithium carbonate and ethosuximide, subjecting flies to negative geotaxis and horizontal locomotor assays, observing the height climbed and distance walked by and the climbing speed of the flies wherein an altered height climbed by flies under drug treatment and a long-lasting alteration in climbing speed of flies after drug withdrawal is most characteristic of the neuroactive compounds.